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March 27, 2014

Kent L. Jones, P.E.
State Engineer
Utah Division of Water Rights
1594 West North Temple, Suite 220
P.O. Box 146300
Salt Lake City, Utah 84114-6300

Re: Invited Comments to Groundwater Management Plan for Cedar Valley and Northern Utah Valley

Dear Mr. Jones:

You invited further public comment at the presentation on January 15, 2014, regarding the latest draft of the Groundwater Management Plan for Cedar Valley and Northern Utah Valley. Lehi City appreciates the extended opportunity to comment, and provides in addition to its comments dated August 8, 2013, the following two comments:

1. The boundary line between Area 54 East and Area 55 should remain as a single line with the Jordan River as the boundary, and should not be a two-mile wide corridor. Unlike other boundary lines for appropriation policies established throughout the State, this is not a single line boundary but a two-mile wide boundary designated as the Central Zone between Area 54 East and Area 55 north of Utah Lake. Lehi City questions why the boundary should not continue to be the well-defined boundary of the Jordan River that has acted and may continue to act as an identifiable physical boundary. Such a boundary leaves no questions as to whether new wells are properly sited within the boundary and to where water rights may be transferred.

2. Modeling shows that allowing additional water rights to transfer within the Central Zone from the west-side to the east-side of the Jordan River will drawdown groundwater to unacceptable levels. The groundwater model used to develop the groundwater management plan was run by Hansen Allen & Luce under potential realistic scenarios.

The reasonable number of acre-feet of water rights that could transfer to the east-side of the Jordan River is about 2,870 acre-feet. Please note that the 2,870 acre-feet includes only groundwater rights in the west-side zone owned or allocated for use by Saratoga Springs City. The 2,870 does not include any of the other groundwater rights located within the west-side part of the Central Zone that also may potentially transfer to the east-side. Please see the enclosed data presented by Hansen Allen & Luce Inc.

The results of the model show that wells on the east-side of the Jordan River could expect an additional drawdown of about 10 to 14 feet per year in an existing area that already has a significant drawdown problem. Please see the enclosed data regarding the modeling results. This drawdown is not acceptable and will impair wells and water rights on the east-side of the Central Zone.

Based on the data submitted with these comments, Lehi City respectfully requests that the Central Zone section of the Appropriation Policy be removed, or at minimum that new change applications under the Appropriation Policy be carefully scrutinized, conditioned, and if necessary rejected, in order to protect existing rights.

Sincerely,
MABEY WRIGHT & JAMES, PLLC

John H. Mabey, Jr.

Cc: Lehi City

JHM/ma

HANSEN ALLEN & LUCE inc
ENGINEERS

Memorandum

DATE: March 26, 2014

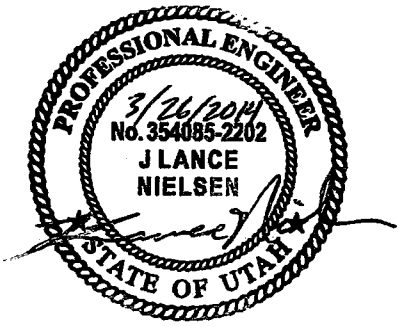
TO: Mr. Lorin Powell, P.E.
Lehi City Engineer
99 West Main St., Ste. 100
Lehi, Utah 84043

FROM: J. Lance Nielsen, P.E.

PROJECT: Lehi City Groundwater Modeling Study

PROJECT NO.: 365.02.100

RE: Projected Impacts of Additional Groundwater Withdrawals in the Southwest Area of Lehi City



PURPOSE/BACKGROUND

As requested by Lehi City, HAL performed an evaluation of the potential impacts of additional groundwater withdrawals in the southwestern area of Lehi City. Utah Division of Water Rights has proposed a new groundwater management plan for northern Utah Valley. As part of this plan, it is proposed that there will be a one-mile buffer on either side of the Jordan River where groundwater rights may be transferred from one side of the river to the other. The City is concerned that transferring water rights from the west side of the river to the east would result in significant groundwater declines in the southwest portion of the City. The extent of the study area is south of Main Street and west of 2000 West within Lehi City.

The City used the groundwater model developed by Gardner (2009) to evaluate the potential impacts of the proposed management plan on the southwest area of the City. This memorandum documents the results of this evaluation.

DATA

Data used for this evaluation included the following data sources:

1. Jim Riley Engineering. 2014. *Saratoga Springs Water Rights East of Jordan River in its Seven Wells.* (See Attached)
2. Jim Riley Engineering. 2014. *Saratoga Springs Water Rights in West Side of 1 Mile Buffer Zone.* (See Attached)
3. Jim Riley Engineering. 2014. *Lehi City Water Rights in the Southwest Area of Lehi.* (See Attached)

4. Cederberg, Jay R., Philip M. Gardner, and Susan A. Thiros. 2009. *Hydrology of Northern Utah Valley, Utah County, Utah, 1975-2005.* Scientific Investigations Report 2008-5197. U.S. Geological Survey.
5. Gardner, Philip M. 2009. *Three-Dimensional Numerical Model of Ground-Water Flow in Northern Utah Valley, Utah County, Utah.* Scientific Investigations Report 2008-5049. U.S. Geological Survey.

EXISTING WATER RIGHTS

Based on water rights summaries prepared by Jim Riley Associates LC, Lehi City and Saratoga Springs currently own approximately 6,400 acre-feet combined within the study area. Based on the model prepared by Gardner (2009), Saratoga Springs is currently withdrawing approximately 1,036 acre-feet from 4 wells within the study area. Lehi City owns one well (Grey Well) within the study area, but are not currently using this well. Jim Riley Associates LC also indicates that Saratoga Springs currently owns an additional 2,870 acre-feet within the 1 mile buffer zone on the west side of the Jordan River. If the proposed management plan for northern Utah Valley is enforced, it is possible that these water rights could all be transferred to the east side of the Jordan River within the study area.

GROUNDWATER MODEL EVALUATION

Based on Cederberg, et. al. (2009), the aquifer system in the northern Utah Valley consists of a basin fill aquifer in the valley areas surrounded by mountains. A large portion of the recharge to the aquifer is from infiltration of precipitation into the mountain bedrock aquifers, which then flows into the basin fill aquifers in the valley. Precipitation over the basin fill deposits along the margins of the valley also contributes to recharge along with infiltration from streams and irrigation.

Gardner (2009) used the information developed by Cederberg, et. al. (2009) to complete a 3-dimensional groundwater model of northern Utah Valley. The aquifers simulated in the model include the following:

1. Shallow Unconfined aquifer,
2. Shallow Pleistocene aquifer (confined),
3. Deep Pleistocene aquifer (confined),
4. Quaternary / Tertiary aquifer (confined),
5. Western unconsolidated aquifer,
6. Bedrock aquifer, and
7. Pre-Lake Bonneville unconfined aquifer.

Wells completed in the southwest area of Lehi City are completed into the Shallow Pleistocene, Deep Pleistocene, and Quaternary / Tertiary aquifers. These aquifer correspond to layers 2, 3, and 4 in the model developed by Gardner (2009).

The size of the original model grid cells in the vicinity of the wells was 1,600 feet per side, which does not provide sufficient detail to determine localized groundwater impacts from pumping. Therefore, the grid spacing was refined by HAL resulting in 400 feet x 400 feet cells within the study area. Without changing any other parameters in the model, the model was executed to generate a base solution representing the approximate existing condition. This base model solution was used for comparison against the following two scenarios:

- Scenario 1

  Flow rates for Lehi City's Grey Well and Saratoga Springs' 4 existing wells were increased within the model so that the combined water rights were fully utilized within the study area. A solution was then generated for this scenario and compared to the base model solution. The difference between these solutions represents the projected groundwater impact of full utilization of Lehi City and Saratoga Springs water rights within the study area.

- Scenario 2

  This scenario included the full utilization of water rights as presented in Scenario 1 with the addition of the 2,870 acre-feet of water rights owned and/or allocated to Saratoga Springs within the 1 mile buffer west of the Jordan River transferred into the 4 existing Saratoga Springs wells. A solution was generated for this scenario and compared to the base model solution. The difference between these solutions represents the projected groundwater impact of full utilization of water rights along with utilization of rights transferred from the 1 mile buffer west of the Jordan River into the study area.

RESULTS

Contours representing equal groundwater impact (in feet) for each of the two scenarios are presented on Figures 1 and 2. Based on these figures, the general regional groundwater impact within the study area is as follows:

- Scenario 1

  Impacts within the study area boundaries are greater than 8 feet with localized impacts greater than12 feet approaching the assumed withdrawal locations. Precise locations of future withdrawals are unknown.

- Scenario 2

  Impacts within the study area boundaries are greater than 10 feet with localized impacts greater than 14 feet approaching the assumed withdrawal locations. Precise locations of future withdrawals are unknown.

Saratoga Springs Water Rights East of Jordan River in its Seven Wells

Water Right #	Change App #	Ac-Ft	Wells - Assumed T5S, R1W unless otherwise noted	Origin of Water Rights
55-8950	a18982	394.4	1 well in sec 19, T5S, R1E & 4 wells in sec 24	Welby - Jacob Water Users
55-1961	a22239	393.2	1 well in sec 13	East of River
55-9343	a22549	401.72	1 well in sec 19, T5S, R1E & 5 wells in sec 13, T6S, R1W	East Jordan Irrigation Company
55-9488	a24193	384	1 well in sec 19, T5S, R1E, 1 well in Sec 13, 1 well in sec 24	East Jordan Irrigation Company
55-9572	a25275	638.75	1 well in sec 19, T5S, R1E, 1 well in sec 13, 2 wells in sec 24	Utah Lake Distributing Company
55-963	a25570	3.25	1 well in sec 19, T5S, R1E, 5 in sec 24, & 5 in 13, T6S, R1W	East of River
54-1086	a26292	201.96	1 well in sec 18, T5S, R1E, 1 well in Sec 19, T5S, R1E	Utah & Salt lake Canal Company
			1 well in Sec 24, T5S, R1E, 1 Well in Sec 24, 4 in sec 34	
55-542, etc	a26829	67.36	1 well in Sec 19, T5S, R1E & 1 well in sec 24	East of River
55-9726	a26962a	246	1 well in Sec 19, T5S, R1E, 1 well in Sec 29, T5S, R1E, 1 well in Sec 3, 3 wells in Sec 12, 2 wells in Sec 13 and 2 wells in sec 24	Utah Lake Distributing Company
55-11899	a26962b	270.81	Same wells as a26962a	Utah Lake Distributing Company
55-2905	a27150	16	1 well in Sec 19, T5S, R1E and 1 Well in Sec 24	East of River
55-9727	a27300	30.882	1 well in Sec 19, T5S, R1E, 1 well in Sec 29, T5S, R1E, 1 well in Sec 3, 3 wells in Sec 12, 2 wells in Sec 13 and 2 wells in sec 24	East of River
54-39, etc.	a28929	52.492	1 well in Sec 19, T5S, R1E, 5 well in sec 24 and 5 wells in sec 13, R6S, R1W	East and West of River (limited to 52.492 East of River)
54-1195	a31751	224.84	1 well in sec 11, 1 well in sec 13, 1 well in sec 12, T6S, R1W	Utah Lake Distributing Company
54-1223	a35252	330.48	2 wells in sec 19, T5S, R1E, 1 well in sec 12, 2 wells in sec 13 and 2 wells in sec 24	Utah & Salt lake Canal Company
54-1214	a35253	142.29	Same wells as a35252	Utah & Salt lake Canal Company
54-1212	a35254	597.59	Same wells as a35252	East Jordan Irrigation Company
54-1226	a35255	294.12	Same wells as a35252	North Jordan Irrigation Company
53-1686	a36127	450	2 wells in Sec 19, T5S, R1E, 2 wells in sec 11, 1 well in sec 12, 2 wells in sec 13, 2 wells in sec 24, 1 well in sec 2, T6S, R1W and 1 well in sec 12, T6S, R1W	Mosida area
54-623	a36309	239.25	Same wells as a35252	West to East
59-5851	a36310	64.26	Same wells as a35252	Utah & Salt lake Canal Company
55-3556	a39183	2.94	Same wells as a35252	East of River
		5446.594		

This list was prepared by Jim Riley Engineering, LC on March 25, 2014

Saratoga Springs Water Rights in West Side of 1 Mile Buffer Zone

Change App #	Location	Ac-Ft	Comments
a28626	NWSW of Sec 11, T5S, R1W NWNW of Sec 12, T5S, R1W NWNE of Sec 10, T5S, R1W	57.232	This Change Application has 4 approved well locations, 2 of which are within the 1 mile buffer on the west side. The other well is on west side just outside buffer zone.
a29140	SESW of Sec 15, T5S, R1W SWNE & SENE of Sec 11, T5S, R1W	444.57	This Change Application has 3 approved well locations, 2 of which are within the 1 mile buffer on the west side.
a31207	SWNE of Sec 11, T5S, R1W NWSW of Sec 2, T5S, R1W	50	This Change Application has 5 approved well locations, 1 is within the 1 mile buffer on the west side. One well just outside buffer and others are south
a32599	SESW of Sec 15, T5S, R1W SWNE of Sec 11, T5S, R1W NWSW of Sec 2, T5S, R1W	19.36	This Change Application has 6 approved well locations, one of which is within the 1 mile buffer on the west side.
a32659	SWNE of Sec 11, T5S, R1W NWSW of Sec 2, T5S, R1W	150.12	This Change Application has 6 approved well locations, one is within the 1 mile buffer on the west side. One other is just outside of buffer and then others are south.
a32707	SESW of Sec 15, T5S, R1W SWNE of Sec 11, T5S, R1W	62.92	This Change Application has 2 approved well locations, both of which are within the 1 mile buffer on the west side.
a33363	NWNW of Sec 12, T5S, R1W Lot 2 of Sec 14, T5S, R1W NENE of Sec 23, T5S, R1W	2004.97	This Change Application has 7 approved well locations, 5 of which are within the 1 mile buffer on the west side. This change was filed by and is owned by Central Utah Water Conservancy District. Change moved it to municipal use within Saratoga Springs.
a33374	SWNE of Sec 11, T5S, R1W	82.62	This Change Application has 3 approved well locations, one is within the 1 mile buffer on the west side. Other wells are further south.
		2871.792	

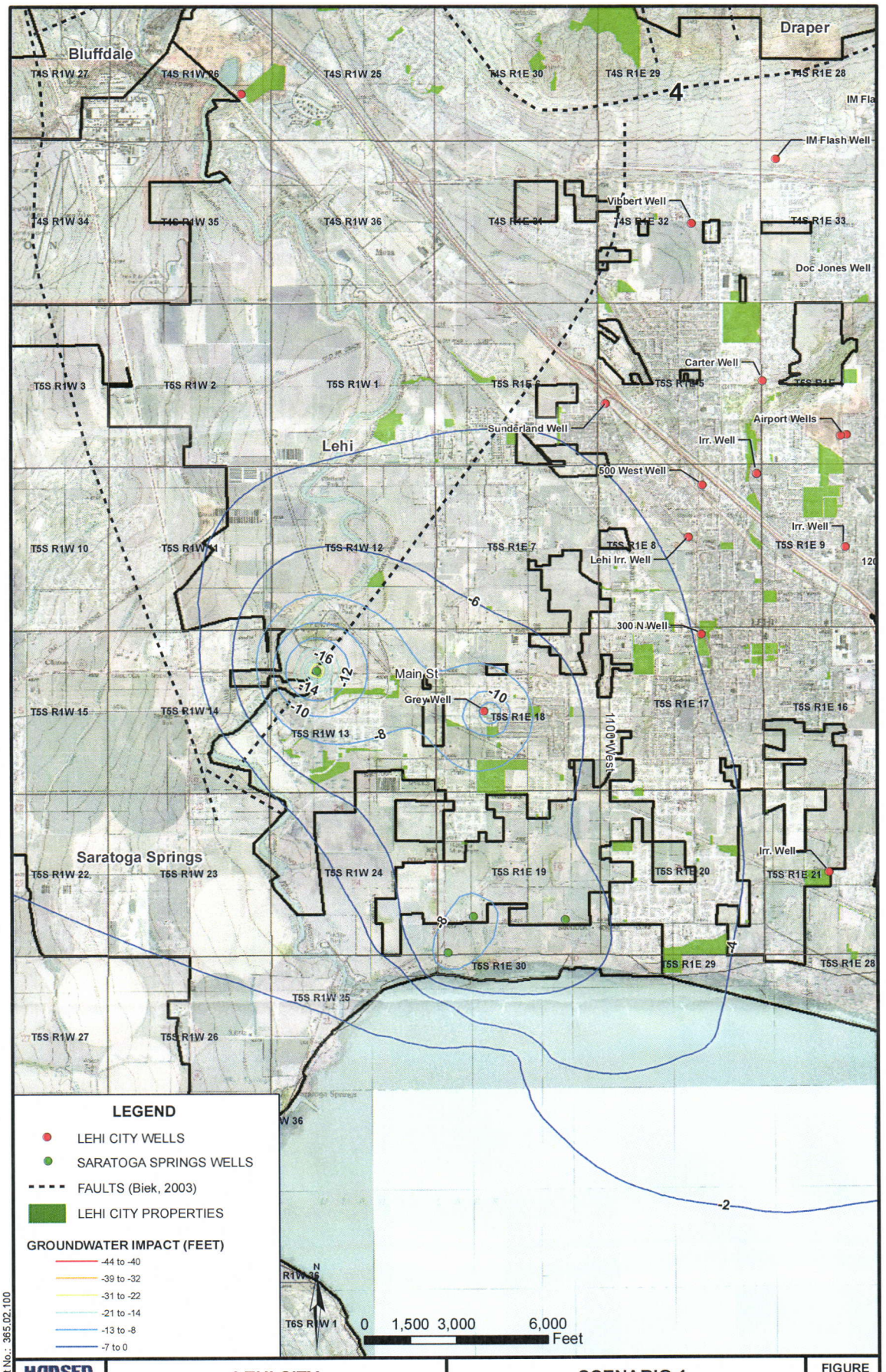
This list was prepared by Jim Riley Engineering, LC on March 25, 2014

Lehi City Water Rights*

WR#	CH #	Ac-Ft	Location
55-12200	a34307	44.324	NESW of Sec 18, T5S, R1E
55-273	a32299	87.7	NESW of Sec 18, T5S, R1E
55-9410	a23246	4	SESE of Sec 18, T5S, R1E
55-9379	a22876	201.472	SESE of Sec 18, T5S, R1E
55-1436	a22244	256.559	SENE of Sec 13, T5S, R1W SWSE of Sec 13, T5S, R1W SWSW of Sec 13, T5S, R1W
55-797	a33844	57	NESW of Sec 18, T5S, R1E
55-2728 et al	a30446	104.92	NESW of Sec 18, T5S, R1E
55-9254	a21243	82.1	NWSE of Sec 18, T5S, R1E
55-2740 et al	a28526	113.5	SWSW of Sec 13, T5S, R1W
		951.575	

*These are Lehi City's Water Rights South of Main Street and West of 1700 West.

This list was prepared by Jim Riley Engineering, LC on March 25, 2014



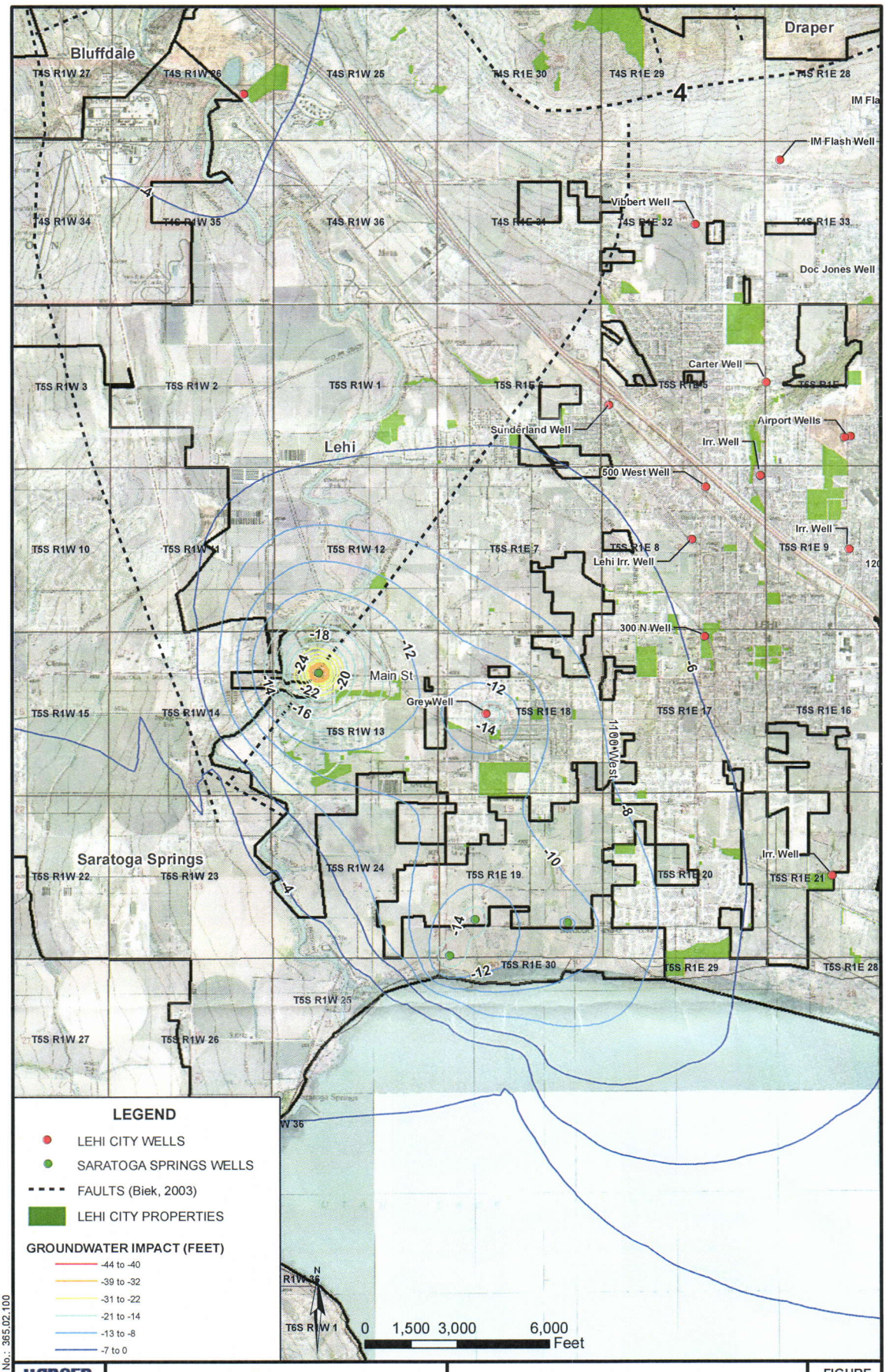
HAL Project No.: 365.02.100

HANSEN ALLEN & LUCE INC ENGINEERS

LEHI CITY GROUNDWATER MODELING STUDY

SCENARIO 1 PUMPING IMPACTS

FIGURE 1



HAL Project No.: 365.02.100

HANSEN ALLEN & LUCE INC ENGINEERS

LEHI CITY GROUNDWATER MODELING STUDY	SCENARIO 2 PUMPING IMPACTS	FIGURE 2